superconducting state;

said copper oxide includes at least one element selected from the group consisting of a Group II A element and at least one element selected from the group consisting of at least one a rare earth element and a Group III B element.

115. (Added) A method comprising the steps of:

forming a composition including copper, oxygen and any element selected from the group consisting of at least one Group II A element and an element selected from the group consisting of a rare earth element and a Group III B element, where said composition is a mixed copper oxide having a non-stoichiometric amount of oxygen therein and exhibiting a superconducting state at a temperature greater than 26°K;

maintaining said composition in said superconducting state at a temperature greater than 26°K; and

passing an electrical current through said composition while said composition is in said superconducting state.

116. (Added) A method including the steps of:

forming a composition exhibiting a superconductive state at a temperature in excess of 26°K;

maintaining said composition at a temperature in excess of 26°K at which temperature said composition exhibits said superconductive state;

passing an electrical current through said composition while said composition is in said superconductive state; and

said composition including a copper oxide and at least one element selected from the group consisting of Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element.

117. (Added) A superconductive method for causing electric-current flow in a superconductive state at a temperature in excess of 26°K, comprising:

(a) providing a superconductor element made of a superconductive composition, the superconductive composition consisting essentially of a copper-oxide compound having a layer-type perovskite-like crystal structure, the composition having a superconductive transition temperature T_c of greater than 26°K, said superconductive composition includes at least one element selected from the group consisting of a Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element;

(b) maintaining the superconductor element at a temperature above 26°K and below the superconductor transition temperature T_c of the superconductive composition; and

(c) causing an electric current to flow in the superconductor element.

118. (Added) A superconductive method for conducting an electric current essentially without resistive losses, comprising:

(a) providing a superconductor element made of a superconductive composition, the superconductive composition consisting essentially of a copper-oxide compound having a layer-type perovskite-like crystal structure, the copper-oxide compound including at least one element selected from the group consisting of a group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element, the composition having a superconductive/resistive transition defining a superconductive/resistive-transition temperature range between an upper limit defined by a transition-onset temperature T_c and a lower limit defined by an effectively-zero-bulk-resistivity intercept temperature $T_{\rho=0}$, the transition-onset temperature T_c being greater than 26°K;

(b) maintaining the superconductor element at a temperature below the effectively-zero-bulk-resistivity intercept temperature $T_{\rho=0}$ of the superconductive composition; and

(c) causing an electric current to flow in the superconductor element.

119. (Added) A method including the steps of forming a transition metal oxide having a phase therein which exhibits a superconducting state at a critical temperature in excess of 26°K;

maintaining the temperature of said material at a temperature less than said critical temperature to produce said superconducting state in said phase;

passing an electrical supercurrent through said copper oxide while it is in said

superconducting state;

said copper oxide includes at least one element selected from the group consisting of a Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element.

120. (Added) A method comprising the steps of:

forming a composition including a transition metal, oxygen and any element selected from the group consisting of at least one Group II A element and an element selected from the group consisting of a rare earth element and a Group III B element, where said composition is a mixed copper oxide having a non-stoichiometric amount of oxygen therein and exhibiting a superconducting state at a temperature greater than 26°K;

maintaining said composition in said superconducting state at a temperature greater than 26°K; and

passing an electrical current through said composition while said composition is in said superconducting state.

121. (Added) A method including the steps of:

forming a composition exhibiting a superconductive state at a temperature in excess of 26°K;

maintaining said composition at a temperature in excess of 26°K at which temperature

said composition exhibits said superconductive state;

passing an electrical current through said composition while said composition is in said superconductive state; and

said composition including a copper oxide and at least one element selected from the group consisting of Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element.

122. (Added) A superconductive method for causing electric-current flow in a superconductive state at a temperature in excess of 26°K, comprising:

(a) providing a superconductor element made of a superconductive composition, the superconductive composition consisting essentially of a transition metal oxide compound having a layer-type perovskite-like crystal structure, the composition having a superconductive transition temperature T_c of greater than 26°K, said superconductive composition includes at least one element selected from the group consisting of a Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element;

(b) maintaining the superconductor element at a temperature above 26°K and below the superconductor transition temperature T_c of the superconductive composition; and

(c) causing an electric current to flow in the superconductor element.

123. (Added) A superconductive method for conducting an electric current essentially without resistive losses, comprising:

(a) providing a superconductor element made of a superconductive composition, the superconductive composition consisting essentially of a transition metal-oxide compound having a layer-type perovskite-like crystal structure, the transition metal-oxide compound including at least one element selected from the group consisting of a Group II A element and at least one element selected from the group consisting of a rare earth element and a Group III B element, the composition having a superconductive/resistive transition defining a superconductive/resistive-transition temperature range between an upper limit defined by a transition-onset temperature (T T_c and a lower limit defined by an effectively-zero-bulk-resistivity intercept temperature $T_{\rho=0}$, the transition-onset temperature T_c being greater than 26°K;

(b) maintaining the superconductor element at a temperature below the effectively-zero-bulk-resistivity intercept temperature $T_{\rho=0}$ of the superconductive composition; and

(c) causing an electric current to flow in the superconductor element.

REMARKS

Claims 24-26, 86-90 and 96 to 113 are in the application.

Herein, EA will refer to the Examiner's Action's dated April 15, 1996.